

CLAIMS

1. An apparatus for positioning an element in a borehole, the apparatus comprising an upper positioning means and a lower positioning means for adjusting the plan position of the element at upper and lower levels respectively, the apparatus being provided with a means to measure the difference in alignment between the first plan position of the element and the second plan position of the element.
2. An apparatus as claimed in claim 1, wherein the means to measure the difference in alignment between the first plan position of the element and the second plan position of the element extends between the upper and lower positioning means
3. An apparatus as claimed in claim 1 or 2, wherein the means to measure the difference in alignment between the first plan position of the element and the second plan position of the element, comprises at least one rigid or taut connection and one or more electrolevel gauges provided on the or each rigid or taut connection.
- 25 4. An apparatus as claimed in claim 3, wherein the rigid or taut connection comprises a wire.
- 30 5. An apparatus as claimed in claim 3, wherein the rigid or taut connection comprises a bar or tube.
6. An apparatus as claimed in claim 3, 4 or 5, wherein two electrolevel gauges are provided which are arranged

so as to measure the inclination of the rigid or taut connection in mutually orthogonal directions.

7. An apparatus as claimed in claim 6, wherein both of  
5 the electrolevel gauges are provided on a single rigid or taut connection.

8. An apparatus as claimed in any one of claims 1 to 7, wherein two rigid or taut connections are provided.

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9. An apparatus as claimed in any one of claims 1 to 8, wherein the upper and lower positioning means each comprise a guide means for adjusting the plan position of an element within the interior space.

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10. An apparatus as claimed in claim 9, wherein the guide means comprises a first and a second pair of rollers which are moveable in mutually orthogonal directions across the interior space.

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11. A Method of positioning an element in a borehole, the method comprising the steps of:

i) placing into the borehole an apparatus comprising an upper positioning means and a lower positioning means for adjusting the plan position of the element at upper and lower levels respectively, the apparatus being provided with a means to measure the difference in alignment between the first plan position of the element and the second plan position of the element;  
25 ii) lowering the element into an interior space defined by the apparatus to a required depth within the borehole; and  
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iii) measuring the difference in alignment between the first plan position of the element and the second plan position of the element by means of the or each electrolevel gauge; and

5 iii) adjusting the upper and lower positioning means to achieve the desired alignment between the first and second plan positions of the element.

12. A method of measuring the difference in alignment  
10 between a first plan position of an element and a second plan position of an element, the method comprising the use of:

i) at least one rigid or taut connection extending between a first point at the level of the first plan  
15 position and a second point at the level of the second plan position, the first and second points being at an identical displacement from the element;  
ii) one or more electrolevel gauges provided on the or each rigid or taut connection, so as to measure the  
20 inclination of the rigid or taut connection.

13. A method as claimed in claim 12, wherein the rigid or taut connection comprises a wire.

25 14. A method as claimed in claim 12, wherein the rigid or taut connection comprises a bar or tube.

15. A method as claimed in claim 12, 13 or 14, wherein  
30 two electrolevel gauges are provided which are arranged so as to measure the inclination of the rigid or taut connection in mutually orthogonal directions.

16. A method as claimed in claim 15, wherein both of the electrolevel gauges are provided on a single rigid or taut connection.

5 17. A method as claimed in any one of claims 12 to 16, wherein two rigid or taut connections are provided.

18. A method as claimed in any one of claim 12 to 17, wherein the or each electrolevel gauge is connected to  
10 an output metre.

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